

KA RUKOM REP, KA JINGOT, KA JINGPYNKYLLA DUR BAD PYNKHAM REM DOR BAD KA KHAII IA U DIENG AGAR BAD KI MAR NA U

Rajib Kumar Borah
Nitin Kulkarni
Harish Chandra Chaudhary

KA RUKOM REP, KA JINGOT, KA JINGPYNKYLLA DUR BAD PYNKHAM REM DOR BAD KA KHAII IA U DIENG AGAR BAD KI MAR NA U

Rajib Kumar Borah
Nitin Kulkarni
Harish Chandra Chaudhary

La pynmih da ka :

Principal Chief Conservator of Forest
Working Plan, Research & Training and District Council Affairs
Forest and Environment Department, Sorkar Meghalaya
Sylvan House, Lower Lachumiere
Shillong-793001 Meghalaya

bad

ICFRE-Rain Forest Research Institute
Post Box No. 136
Jorhat-785010 Assam

Copyright© 2024 ha ka jingthoh: Forest and Environment Department, Sorkar Meghalaya bad ICFRE- Rain Forest Research Institute, Jorhat, Assam.

Copyright© ha ki dur: La ai burom da u briew shimet

Baroh ki hok la buh kyrpang. Ym lah ban pynmih biang ia kano kano ka bynta jong kane ka kot, ban buh ha kano kano ka rukom wad jingtip, lane ban pynpoi ha kano kano ka dur ne da kano kano ka rukom, da ka kor, da ki mashin, da kaba shon dur, lane da kumwei pat, khlem da ioh jingbit na ki nongbat hok. La shah ban pyndonkam na ka bynta ki jingthmu hikai da kaba ai burom ia ka jingpynmih.

Citation: Borah RK, Kulkarni N, Chaudhary HC. *Ka Rukom Rep, Ka Jingot, Ka Jingpynkylla Dur Bad Pynkham Rem Dor Bad Ka Khaii Ia U Dieng Agar Bad Ki Mar Na U*. Shillong: Forest and Environment Department, Government of Meghalaya & ICFRE-Rain Forest Research Institute; 2024.

La pynmih: Nailar, 2024

Ka dur ha ka sla: Dieng *Aquilaria malaccensis*

Ka dur sla jong ka kot ba la shna da: Varun Goswami

La designed bad shon da: Eastern Panorama Offset, Shillong

La pynkylla na ka English sha ka Khasi : Steffinie C. Nongrum, Larikynti Iangrai bad Eli Ferdinand Kharsati

Ka dor: ₹ 100/-

ISBN: 978-81-978824-1-8

JINGLAMPHRANG

Lynnong 1: JINGLAMPHRANG 1

1.1 Khyndiat Shaphang u Dieng Agar 1

1.2 Ka Jingbatai Shaphang ka Jinglong u Dieng *Aquilaria malaccensis* Lam. 3

1.3 Ki Jaka ba u mih bad Ka Jingiadei bad Ka Mariang 5

1.4 Ki Jaka ba lah ban Shem ia u *Aquilaria malaccensis* 6

1.4.1 Ha Pyrthei 6

1.4.2 Ha India 7

1.4.3 Ha Thain Shatei Lam Mihngi Jong ka India 8

1.4.4 Ha Meghalaya 9

Lynnong 2: KA JINGMIH U DIENG-MET AGAR 10

2.1 Ka Rukom Pynmih ia u Dieng-met Agar 10

2.2 Ka Jingmih hi khlem da Leh khnang 11

2.3 Ki Buit Pynmih da kaba Leh khnang 11

2.3.1 Da kaba Pynmong/Pynmynsaw khnang 11

2.3.2 Da ki Dawai 12

2.3.3 Da ki Phngit Jingim 13

Lynnong 3: KI JINGPYNDONKAM IA KA DIENG-MET AGAR 18

3.1 Ki Nongpyndonkam ba Kongsan ia ka Dieng-met Agar 18

3.2 Ki Mar na u Agar 19

3.2.1 Ki Shynrain dieng, Powdar bad Jingthang Pynsma Iwbih 19

3.2.2 Ka Umphniang Agar 19

3.2.3 Ki Tiar sumar shimet 19

3.2.4 Ki Mar ba long Dawai na ka Dieng-met Agar 20

3.2.5 Ki Tiar pynwandur na u Dieng-met Agar 21

3.2.6 Ka Sha na u Agar 22

Lynnong 4: KA JINGREP/THUNG IA U DIENG AGAR 23

4.1 Ka Jinglum Symbai 23

4.2 Ki Kam ha ka Nur Sara 23

4.3 Rukom Thung 24
4.3.1 Ha ki Kyrpong Iing 24
4.3.2 Ha ki Khap Bun ne ka Sawdong Sawkun 25
4.3.3 Ka Rukom thung Block Plantation/ ne ha ki Kynhun ha Lum 25
4.4 Ka Rep ka Riang Ryngkat ki Dieng Agar 26
4.5 Ka Sboh, ki Sboh Dawai Ryngkat ki Sboh Phngit Jingim 27
4.6 Ki Jingpang jong u Dieng Agar bad ki Lad Iada 28
4.6.1 Ki Khniang Pynhapsla jong u Dieng Agar 28
4.6.2 Ka Jingiap tnat jong u Aquilaria malaccensis 29
4.6.3 Jingpang iap kyniur jong u Aquilaria malaccensis 30
Lynnong 5: KA JING OT IA KA DIENG-MET AGAR 32
5.1 Ka Rta Ot / Kheit 32
5.2 Ka Aiom Ot / Kheit 32
5.2.1 Ki Dak kiba Shabar ban Ithuh ia ka Jingman ka Dieng-met Agar 32
5.3 Ka Rukom Ot/Kheit 34
Lynnong 6: KA JINGMIH BAD KA JINGKHEIN JINGDIAH 36
6.1 Ka Jingmih 36
6.2 Ka Jinglut Jingsep 36
Lynnong 7: KI AIN BAD KI JINGPYNIAID 38
7.1 Ka Jingot bad ka Jing Shalan 38
7.2 Ka Rukom Pynkylla Dur 38
7.3 Ka Khaii Pateng ha ka Pyrthei kyllum 39
7.4 Katno Man u Snem lah ban Shalan 40
7.5 Ka Jingpyllait na ka Bynta ban Pyndonkam ha Iing 41
7.6 Ki Mar ba lah ban Shalan 41
Lynnong 8: JINGPYNKUT 42
Ka thup jong ki dur
Dur 1: Ki dieng *Aquilaria malaccensis* 2
Dur 2: *Aquilaria malaccensis* 3
Dur 3: Ki sla jong u *Aquilaria malaccensis* 4

Dur 4: Syntiew u *Aquilaria malaccensis* 4
Dur 5: U soh *Aquilaria malaccensis* 5
Dur 6: U soh bad ki symbai 5
Dur 7: Jinglap ia u *Aquilaria Sp*. ha ka pyrthei 6
Dur 8: Jinglap ia u *Aquilaria malaccensis* ha India 8
Dur 9: Ki jaka ba iahap ban rep ia u ha Meghalaya 9
Dur 10: *Neurozerra conferta* 10
Dur 11: Ka jingmih ka dieng-met agar khlem da leh khnang 11
Dur 12: Ki buit pynmong khnang ban pynmih dieng-met agar 12
Dur 13: Ka rukom pynmih dieng-met agar da ki dawai 12
Dur 14: Ka buit pynmih dieng-met agar da ki phngit jingim 13
Dur 15: Ki jait phngit jingim bapher ba la pynmih da ka ICFRE-RFRI, Jorhat ban bsut khnang 14
Dur 16: Ka rukom sam thliew ha u dieng 14
Dur 17: "Sasi Inoculant" u phngit jingim ban bsut khnang ha u *Aquilaria malaccensis* 14
Dur 18: Ka jing kylla dieng-met agar ha ki dieng agar ha Assam 15
Dur 19: Ka jingmih dieng-met agar ha Meghalaya da ka ba injek khnang 15
Dur 20: Ha Tripura 16
Dur 21: Ka dieng-met agar ha North Bengal 16
Dur 22: Da kaba pyndonkam da ki powdar phngit jingim 17
Dur 23: Ka map ba pyni ia ki ba pynmih bad kiba dawa ia ka dieng-met agar 18
Dur 24: Ka shynrain dieng-met agar, powdar, bad jingthang sma iwbih 19
Dur 25: Ki mar sumar shimet na u dieng-met agar 20
Dur 26: Ki tiar jingtrei kti na ka dieng-met agar 21
Dur 27: Ka sha agar 22
Dur 28: Ki tynrai ha ki nur sara 24
Dur 29: Ki tynrai ba lah rah sha ki plastik polybag 24
Dur 30: Dieng-met agar ha ki kyrpong iing 24
Dur 31: Kaba thung ia ki dieng agar ryngkat kiwei pat ki mar rep 26
Dur 32: Dieng agar bad u sohtrun 27
Dur 33: Dieng agar bad u slasha 27

Dur 34: Dieng agar bad u sohmrit, kwai bad slasha 27

Dur 35: Dieng agar ryngkat ka bri kait 27

Dur 36: U Heortia vitessoides ha ki dieng agar 29

Dur 37: Ka jingiap tnat u *Aquilaria malaccensis*.....29

Dur 38: Ka jingiap kyniur u *Aquilaria malaccensis* 30

Dur 39: U khniang sam thliew ha u dieng agar 32

Dur 40: U ksain ba rung sha ki thliew 33

Dur 41: Ka jingmih ka kynja um na ki thliew thymmai 33

Dur 42: Ki dak ha ka trai u dieng 33

Dur 43: Ka jingdap/tap ia ka thliew ba mong 33

Dur 44: Ka dak orpait..... 33

Dur 45: Ka jingmih ka dieng-met agar ryngkat ki thliew khniang.....33

Dur 46: Ki lyngkhot dieng agar ba la ot 34

Dur 47: Ki dieng ba la pharia 34

Dur 48: Ki dieng agar ryngkat ka khlein ba pharia 35

Dur 49: Ka tiar pjiar 35

Dur 50: Ka jinglum da ka bormet ia ka dieng-met agar 35

Dur 51: Ki shynrain dieng-met agar 35

Dur 52: Jingpdem ia ki shynrain dieng-met agar ha ka um 35

Dur 53: Ka umphniang dieng-met agar 35

Ka thup jong ki Tables

Table 1: Jinglap ia u *Aquilaria Sp.* ha ka pyrthei 7

Table 2: Jingdon ki dieng agar ha ki jylla ka ri India 7

Table 3: Ka jinglut jingsep ia ka jingpynlut ha kaba thaw bad sumar ia ka kper dieng agar kaba shi hektar kaba kynthup ia 1700 tylli ki jingthung agar ha ka jingim kaba 15 snem.... 36

Table 4: Ka jingkhein ia ka jingmih na ka jingthung agar kaba hektar kaba don 1,700 tylli ki dieng ha ka por ba 15 snem..... 37

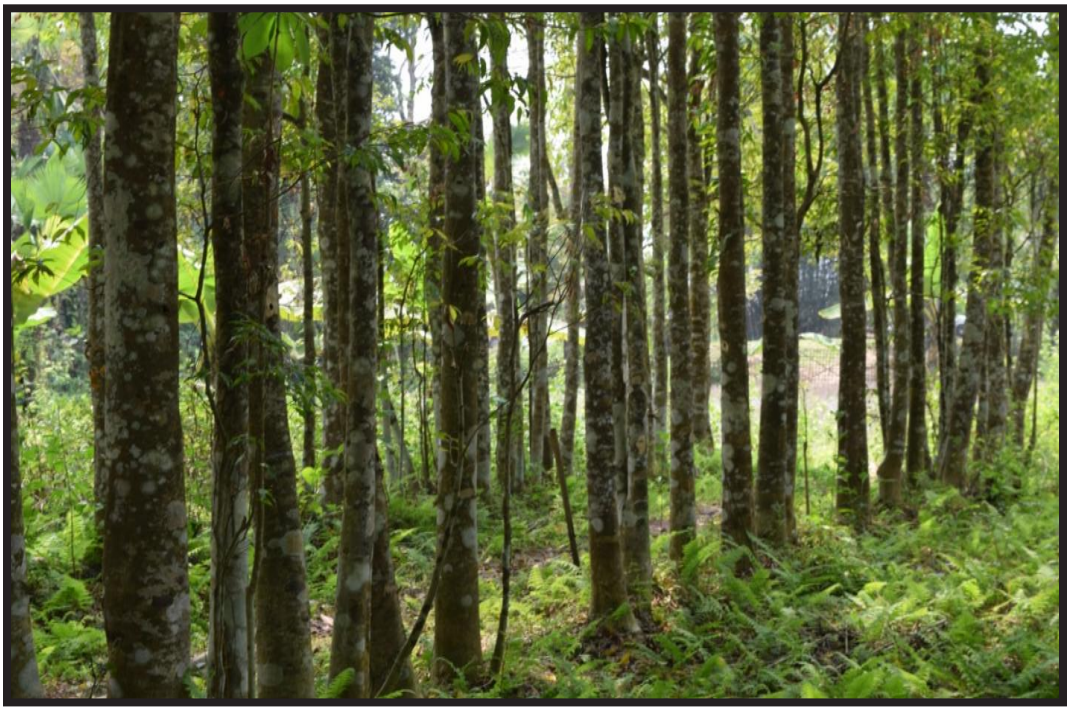
Lynnong 1: JINGLAMPHRANG

1.1 Khyndiat Shaphang u Dieng Agar

U dieng-met Agar, u dei u diengmet uba don ka khlein ba iwbih ba ju ioh na ki dieng ba jyrngam baroh shisnem kum na ki kynhun dieng *Aquilaria*, *Gyrinops*, *Aetoxylon*, bad *Gonystylis*, kiba hap ha kajuh ka longiing Thymelaeaceae. U dei ruh uba la tip da kiba bun ki kyrteng kum u *'agaru'*, *'aloeswood'*, *'eaglewood'*, *'gaharu'*, *'oud'*, *'chén xiāng'*, bad *'jinkoh'*. Kine ki jaitdieng la lap naduh ka India shaduh ka dewlynnong New Guinea bad naki Tropical China shaduh ki dewlynnong Lesser Sunda. Napdeng kine, ki jaitdieng *Aquilaria* ki long ki tyllong ba kongsan ban ioh ia u dieng met Agar.

Ha India, ia ki dieng agar lah ban shem ha Arunachal Pradesh, Assam, Manipur, Meghalaya, Tripura, Mizoram, Nagaland, Sikkim, bad ki bynta ba shatei jong ka West Bengal, kumjuh ruh ha ki katto katne ki jylla ha ki thain shathie kum ha Karnataka, Kerala, bad Goa. Ki dieng agar ki mih ha ki bynta kiba bun jong ka jylla Meghalaya lait noh tang ha ki thain jong u lum Shillong. Nalor u *Aquilaria malaccensis*, u dieng uba long u tynrai ba kongsan tam ha India ban ioh ia u dieng met Agar, la shem ruh ha Meghalaya, ia u *Aquilaria khasiana*, u jait dieng ba long niar ban shem.

U dieng-met Agar u don ka kynja khlein ba remdor namar ka jingdon ka jingsma iwbih ba kham pher bad jinglong dawai. La pyndonkam ia u dieng-met Agar palat 2,000 snem na bynta ka koit ka khiah, jingiwbih bad na ka bynta ki jinglehniam. Ia ka khlein la pyndonkam ha ki ba bun rukom na ka bynta ka jingpynmih ia ki jing thang pynsma iwbih, jingtah iwbih, ki jingtah pynbha sniehdoh bad ki dawai. Ia kane ka khlein la pynlong bad pynlang ha u dieng-met bad ki tnat dieng jong u Agar kum ka lad jingiada ban ialeh pyrshah ia ka jingkylla jong ka mariang, ki phngit jingim bad ki dawai kiba lah ban pynjulor ia u dieng. Ka jingmih bad ka jinglang jong ka khlein, kum ka lad jingiada na ki jingpang phngit jingim ne ki khniang kiba sam thliew ia ki dieng ka jia ha ki 10-15 tylli na ka shispah ki dieng ba mih ha khlaw. Ia ka khlein lah ruh ban pynmih lyngba ki jingpynmong khnang, ka jingpang phngit jingim bad da kaba pyndonkam da ki dawai. Kaba kham kynrei eh ha ka rukom pynmih ia kane ka khlein ka dei da ka jing bsut da ki phngit jingim. Ia ki buit thymmai ba duna jinglut ban pynmih bha ia kane ka khlein ka dang iaid shakhmat.



Dur 1: Ki dieng *Aquilaria malaccensis*

Ka jingbha jong u dieng-met Agar ka shong ha shibun ki mat, kaba kynthup ia ki jait dieng, ka jaka, ka bynta jong u dieng ba pynmih ia ka khlein, ki daw jong ka jingmih jong ka khlein, ka rta jong u dieng naduh ba ioh jingpang, ka rukom lum bad ka rukom pynkylla dur. U dieng-met Agar u neh slem ka jingsma iwbih lada pynlang ha ka rukom kaba dei, kaba pynlong ia u ban lah ban pynlang bad shalan shajngai kum ki mar ki mata kiba kordor, kum ki mawkordor bad ki kynja marpoh khyndew ba remdor. U dieng-met Agar uba bha tam, uba ju khot " ka um ksiar", u long uwei na ki mar kiba remdor tam ha ka pyrthei ba ioh na ka mariang. Ki dieng agar kim don ka jingmad kaba bang, kumta, ki jingri kin nym pynjulor ne bam ia ki. Kine ki jait dieng ki lah ruh ban shah ia kiba bunjait ki khyndew kiba pher, ka mariang ba pher bad kumjuh ka jinglong ki lum ki them. Ia ki dieng agar ba la sumar bad rep bha lah ban ioh lum hapdeng ki shiphew haduh khatsan snem ban pynmih ia ki shynrain dieng met agar, umphniang bad kiwei ki mar ki mata ba la pynkiew dor. Ka jinglyngkot rta jong u dieng ban ioh nong, jingduna ha ki jingpyndonkam ban rep, bad ka jingbym don jingktah ia ka mariang, ka pynlong ia u dieng agar kum uwei na ki jait dieng ba lah ban thung lang bad kiwei ki mar rep.

Ka jingpyn kylla dur ia u dieng-met agar, khamtam ban lum ia ki bynta ba don ka khlein kum ki shynrain dieng, ka long kaba donkam bha ban trei bormet. Kumjuh ruh, ka

jingsara bad sumar ia ki tynrai dieng agar ha ki kper sara ka lah ban ai kam shibun eh na ka bynta ki briew ha ki shnong. Ka jingrep, ka jingsumar bha ia ki jaka rep, ka jinglum, ka jingpynkylla dur sha ki mar ki mata bakordor, ka jingpynïaid iew bad ka jingkhaii jong u dieng met agar bad ki mar kiba mih na u ki don ka jingkhmih lynti kaba khraw ban kyntiew ia ka ioh ka kot bad ka lad ai kam ia ki nongshong shnong jong ka jylla.

Namar ka jingduna bad ka jingdawa kaba bun, u *Aquilaria malaccensis*, uba long uba kongsan ban pynmih ia u dieng-met agar ha ri India, la jer bad la kynthup ia u ha ka Appendix II jong ka Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) kum "uwei na ki jait dieng uba don ha ka jingma ban duh jait", khnang ban pynthikna ba ka jingkhaïi kan ym long ka daw kaban pynduh jait ia u. Ka jingshalan jong u dieng-met agar ka donkam ia ka Shalan Permit na ki bor bahalor ba la jied da ka CITES. Ia kane ka permit lah ban ai halor ka nongrim jong ka Certificate of Legal Procurement (CLP) da u ophisar u bym hapoh ka kyrdan jong u Assistant Conservator of Forests.

1.2 Ka Jingbatai Shaphang ka Jinglong u Dieng *Aquilaria malaccensis* Lam.



Dur 2: *Aquilaria malaccensis*

Ka kyrteng "*Aquilaria*" ka wan na ka kyntien Latin 'aquila,' kaba mut 'u khlieng,' ne na ka kyntien Akkadian 'eklu,' kaba mut 'dum' ne 'ekelu,' kaba mut 'ba long dum'. Ka jingbatai ba thikna "*malaccensis*" ka kdew ia ka jaka ba long ne mih ha thain ne jaka, Malacca, kaba dei ka jylla rud duriaw jong ka ri Malaysia.

U *Aquilaria malaccensis* Lam. u dei u dieng uba lah ban shah ia ki jingkah syrngiew uba lah ban dei diengrit haduh diengbah ha ka jingheh kaba lah ban kot sha ka 20 haduh 40 mitar ka kynieng. U dieng u don ia ka sharati metbah kaba beit bad ka jingkyrshan kaba rben haduh 2 mitar ka kynieng bad ka jingiar kaba kot haduh 60 sentimitar. Ka snep dieng ka long kaba stang, ba jlih, rong dpei bad ba jwat, katba ka dieng-met ka long kaba sting, ba jem bad ba don ki thliew barit. Ki tnat ki long kiba rit, lam rong ktieh blad bad ba sop da ki shniuh barit kiba jlor noh katba nang iaid ka por.



Dur 3: Ki sla jong u *Aquilaria malaccensis*

Ki sla jong u *Aquilaria malaccensis* ki long kiba jem bad ki mih ryngkhi ha baroh arliang. Man la ki sla ki don ia ki tnat kiba jrong kumba 4 haduh 6 millimitar. Ka syrti jong ka sla ka wan dur lam jrong pyllun, kaba jrong 7.5 haduh 12 sentimitar ka bad 2.5 haduh 5.5 sentimitar ka jingiar. Ki sla ki long kiba rben bad kiba eh, ki bym don shniuh, hynrei don ki sla kiba don ki shniuh bad don pat kibym don ha ka bynta ba shapoh, bad ha baroh ar liang jong ka sla ka thaba ne phyrnai. Ka trai jong ka sla ka lam dur pashli rit ne ka ba mar ia biang ne kaba iar katba ka tduh pat ka lam iar kaba lah ban kot sha ka 2 sentimitar ka jingjrong . Ki thied ha ki sla ki long ki bym ryntih, kiba phiah tnat biang, ki ba paw shynna bha ha ka bynta ba shapoh jong u sla, bad ki khun shajrong ka liang jong ki rud jong ka sla katba ki thied ba phiah pnat pat ki lah ban don 12 haduh 16 jur.



Dur 4: Syntiew u *Aquilaria malaccensis*

Ka rynjup syntiew jong u *Aquilaria malaccensis* ka lah ban mih ha ka tduh ki tnat, ne ha ki shylluit tnat ba phiah lane ki mih kum kita ki syntiew supra-axillary bad tengkhat ki paw kum ki internodal umbels. Kine ki thup syntiew ki phiah kumba 2 ne 3 kynhun bad man ka kynhun ki don kumba 10 tylli ki syntiew. U tnat pynsnoh u jrong 5 haduh 15 millimitar bad ki tnat snoh syntiew ki stang bad ki jrong tang 3 haduh 6 millimitar. Ki syntiew ki don san sla bad kiba lam dur kum ka baje, ka jingjrong 5 haduh 6 millimitar, bad ki lam rong jyrngam ne stem-jngum bad ba don shniuh kiba saphriang shabar. Ka tyndong u syntiew ka don shniuh malu mala shapoh, 10-kynhun ba shai bad kaba neh skhem ha u soh. Ki sla sop ia u syntiew ki don 5 tylli, jrong pyllon, 2 haduh 3 millimitar ka jingjrong, ba ia ryngkat bad ki tyndong syntiew bad ki don shniuh ha ki bynta kiba shapoh. Don 10 tylli ki sla syntiew kiba don hapdeng jong ka tyndong syntiew, kiba jrong pyllun ne lam dur pylleng, kumba 1 millimitar ka jingjrong, kiba kdor shapoh, bad la sop da ki shniuh kiba jrong bad ba jem. Don 10 tylli ki stamen kiba mih na ka pdeng jong ka tyndong syntiew, bad ki filament kiba don 1.2 haduh 2 millimitar ka jingjrong. Ki episepalous stamen ki

long kiba jrong ban ia kiwei. Ki anther ki long kiba beit bad lam at. U pistil u don hapoh u syntiew, bad u don ka ovary kaba lam dur pylleng ba jrong 1 haduh 1.5 millimitar ka jingjrong, 2-kynrad bad don shniuh. U style um paw bha katba u stigma pat u paw bha.



Dur 5: U soh *Aquilaria malaccensis*



Dur 6: U soh bad ki symbai

U soh u long uba phiah shiteng napdeng ha ki ar bynta, uba long obovoid ne obovoid-cylindrical, uba don ka jingjrong kaba long 3 haduh 4 sentimitar bad ka jingiar kaba long 2.5 sentimitar. U soh u long uba eh, ba don shniuh kiba jlor noh ynda la iaw, uba don ka base kaba cuneate bad ka tduh kaba pyllon bad kaba eh kum ka dieng. U symbai u long ha ka dur pylleng, 10 × 6 millimitar, kynthup ia ka khlieh kaba don 4 millimitar ka jingjrong, ba la sop rben da ki shniuh kiba saw, bad na trai u symbai u don u shylluit tdong, uba sop shniuh bad ka jingjrong ka iaryngkat bad u symbai.

1.3 Ki Jaka ba u mih bad Ka Jingiadei bad Ka Mariang

U *Aquilaria malaccensis* u long u dieng u ba heh bad uba neh ka jingjyrngam, uba lah ban shem ha ki jaka bapher bapher, kynthup ha ki jaka ba don maw, jaka shyiap, jaka ba don mawshun, ki riat, ki them bad ki jaka kiba long kum ka ahor. La ju kham shem ia ki ha ki trai lum bad ki jaka khlaw kiba don ki jingat jingthem ba mih ki jingthung jyrngam baroh shisnem ne kiba neh jyrngam shipor. Ka khyndew ba kham iahap ban thung ia u dieng agar ka dei ka bym lang um, ka ‘dew sboh ba jylliew, ka khyndew lam shyiap sboh lane ka ‘dew sboh kaba don ia ka pyut mariang bad ka khyndew ba kham lam jew. La ju lap ia u ha ki jaka ba don ka jingjrong na sla duriaw kaba 0 haduh 1000 mitar. Ka jinghap slap shisnem kaba 1800 haduh 3500 millimitar, jingshit jingkhriat kaba 20 haduh 28 degree Selsius bad jingsngem ka haw haw kaba 80%. Ia u *Aquilaria sp.* la lap ba u duna ka jing khie im biang ha ka mariang da lade bad suki bha ka jing heh jing san.

1.4 Ki Jaka ba lah ban Shem ia u *Aquilaria malaccensis*

1.4.1 Ha Pyrthei

Ia u *Aquilaria malaccensis* la lap ha ki bun tylli ki ri ha ka dewbah Asia, kynthup ia ka India, Bangladesh, Bhutan, Indonesia, Laos, Malaysia, Myanmar, Philippines, Singapore, bad Thailand. Ka World List of Threatened Trees ka la kynthup ruh ia ka Iran kum kawei na ki ri ba don ia u *A. malaccensis*, hynrei ha ka jingbishar kaba bniah da ka CITES ha u snem 2002 ka pynshisha ba ym don une u jait jingthung ha ka ri Iran.



Dur 7: Jinglap ia u *Aquilaria Sp.* ha ka pyrthei

Table 1: Jinglap ia u *Aquilaria Sp.* ha ka pyrthei

Ri	**Species**
India	*A. khasiana, A. malaccensis*
Nepal	*A. malaccensis*
Bhutan	*A. malaccensis*
Myanmar	*A. malaccensis*
China	*A. sinensis, A. yunnanensis*
Thailand	*A. crassna, A. hirta, A. malaccensis, A. rugosa, A. subintegra*
Laos	*A. crassna*
Cambodia	*A. baillonii, A. crassna*
Vietnam	*A. baillonii, A. banaensis, A. crassna, A. rugosa*
Peninsular Malaysia	*A. beccariana, A. hirta, A. malaccensis, A. microcarpa, A. rostrata*
Singapore	*A. beccariana, A. hirta, A. malaccensis, A. microcarpa, A. rostrata*

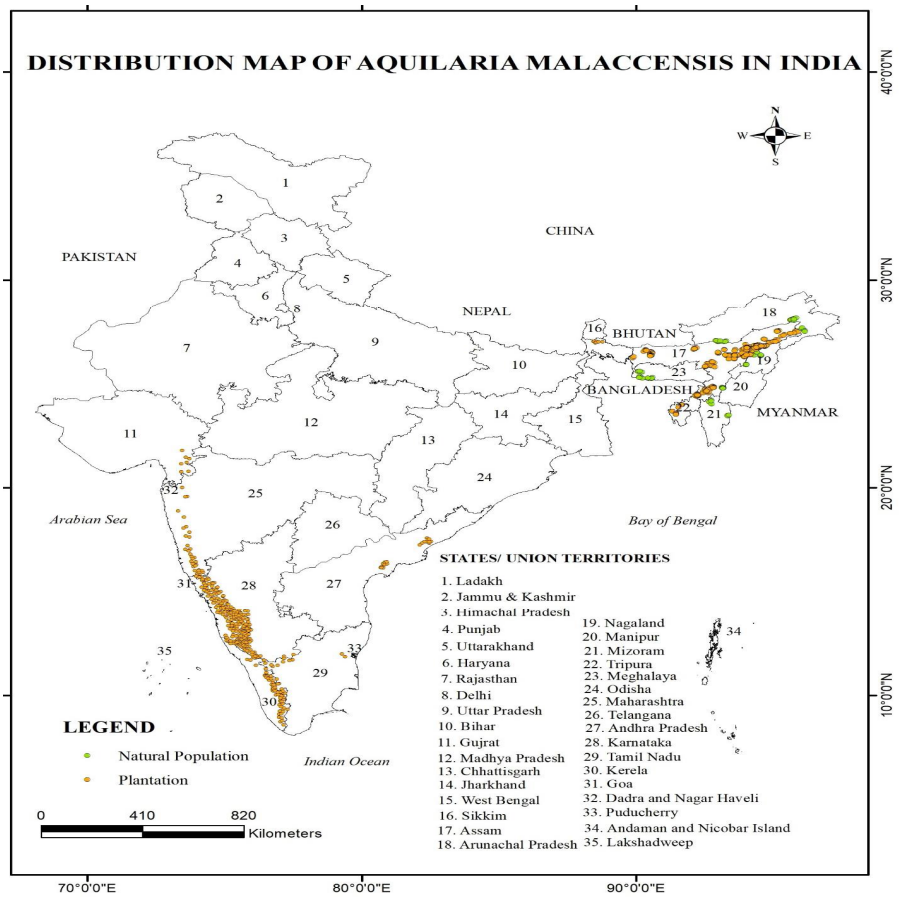
1.4.2 Ha India

U *Aquilaria malaccensis* (syn. *A. agallocha*) bad u *Aquilaria khasiana* ki dei ki ar tylli ki jait dieng agar kiba mih hi ha ki khlaw ha ri India. U *A. malaccensis* u mih ha ki trai lum jong ki khlaw jong ki jylla ha thain shatei lam mihngi bad ha West Bengal, haduh ka jingjrong na sla duriaw kaba 1000 mitar. La thung ruh ia u ha ki bynta jong ka Western Ghats ha Kerala bad Karnataka. Don ruh ki jaka ba thung kham duna ha Tamil Nadu, Telangana, Andhra Pradesh, Goa, Maharashtra, bad Gujarat. U *Aquilaria khasiana* u long u jingthung uba lah ban shem tang ha ka jylla Meghalaya.

Katkum ka Botanical Survey of India, ka jingdon ki jingthung kiba la palat 2 snem ka rta ne ka girth at breast height (GBH) kaba heh palat ia ka 10 sentimitar ha India ki don kumba 139.89 million tylli (13.989 klur).

Table 2: Jingdon ki dieng agar ha ki jylla ka ri India

Jylla	**Jingdon ki dieng**
Assam	11,43,00,000
Tripura	1,51,50,000
Manipur	32,00,000
Karnataka	24,20,000
Nagaland	22,80,000
Andhra Pradesh	10,00,000
Kerala	10,00,000
Maharashtra	3,00,000
Meghalaya	1,72,000
Arunachal Pradesh	25,000
Telangana	20,000
Mizoram	10,000
Tamil Nadu	10,000
West Bengal	5,500
Others	3,000
Total	**13,98,90,000**



Dur 8: Jinglap ia u *Aquilaria malaccensis* ha India

1.4.3 Ha ki Thain Shatei Lam Mihngi Jong ka ri India

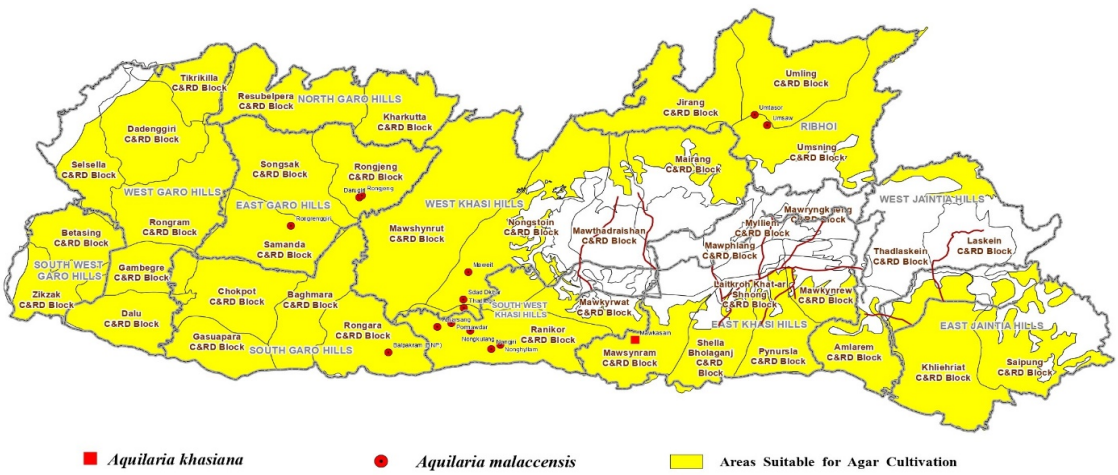
Ha ki thain shatei lam mihngi jong ka ri India, ia u *Aquilaria malaccensis* la lap bunsien ba u mih ha trailum ki khlaw bad ka jing don jong u ka kham bun ha Assam, Manipur, Meghalaya, Mizoram, Nagaland, bad Tripura. Ki jinglong jingman jong ka mariang bad ka jinglong ka khyndew ha kane ka thain ka long kaba iahap bha na ka bynta ka jingheh jingsan bad ban rep ia u. Ki jylla kiba hakhmat tam ha ka jingpynmih ia u dieng-met agar ki long ka Assam bad Tripura. Ka Assam ka long ka jylla kaba hakhmat eh ha ka jingpynmih ia u dieng-met agar bad ka jing thung ia u ruh ka long kaba ha khmat eh, khamtam ha ki district jong ka Golaghat, Jorhat, Sivasagar, bad Karimganj. Ka district Golaghat ka don kumba 450 lak tylli ki dieng-met agar, kaba pynlong ia ka ka jaka ba kongsan ha ka rep bad jingkhaïi. Ha Tripura, don kumba 150 lak tylli ki dieng-met agar, bad ka jingthung ka kham bun ha ki district jong ka North Tripura bad Unakoti. Ha kine

ki jaka, ka jingthung ia u dieng-met agar ka long kaba kynrei bha ha man la ki longing, kaba iarap bha ia ka ioh ka kot ha kane ka thain.

Ka district Jiribam jong ka Manipur ka paw bha ha kaba rep ia u dieng-met agar. Ka jingdon jong ka jingpang ka kham kynrei ha kane ka thain, kaba iarap bha ban pynmih ia u dieng-met agar. Ia u dieng agar la thung ha ki katto ki jaka khlem ryntih ha ki bynta ba lum umslap jong ki wahbah ba kongsan ha Mizoram, kaba kynthup ia ka jingpynmih kyllum baroh kawei jong ka jylla. Ha Nagaland, ka jingthung kaba bun ka long ha ki district kum ha Mokokchung bad Mon, ha kaba u dieng agar u mih bha.

1.4.4 Ha Meghalaya

Ha Meghalaya, baroh ki jaka ki long kiba bit na ka bynta ka jingthung agar lait noh tang ha ki thain u Lum Shillong, ki jaka ba don u dieng kseh khasi, bad ki jaka ba kham jan ia ka rudwah Brahmaputra kiba ju mad ka jinglang um. Ka jingiar jong ka jaka bad ka jinglong ka mariang ka pynlong ia ka Meghalaya ka jaka kaba bit bha na ka bynta ban thung ia u *Aquilaria malaccensis*, kaba lah ban iarap bha ha ka roi ka par jong ka ioh ka kot jong ka thain.



Dur 9: Ki jaka ba iahap ban rep ia u ha Meghalaya

Lynnong 2: KA JINGMIH U DIENG-MET AGAR

2.1 Ka Rukom Pynmih ia u Dieng-met Agar

Ka jingmih jong u dieng-met agar ka long na ka jinglang jong ki khlein hapoh u diengmet. Kane ka khlein kaba mih ha ki diengbah bad ki tnat jong ki dieng agar ka long kum ka lad jingiada na ki jingshahktah ba pynjulor kum ki phngit jing im, ka jingmong, bad ka jingktah na ki daw ki dawai ba don ha ka mariang. Ha ki kynhun ba im ha khlaw, ka jingmih jong ka khlein ka jia kumba 10-15 persen jong ki dieng kum ka lad jingiada na ka jingshah ktah ha ki phngit jingim fungus bad ruh na ki khniang sam thliew ha ki dieng. Kane ka sdang naduh ba u diengbah u sdang mong lane shah ksam ha ki larvae jong u niang sam thliew (*Neurozerra conferta*). La ngeit ba une u khniang u kit ia ki phngit jingim fungus ha ka shyntur jong u bad u ksam pat sha ka met jong u diengbah. Kine ki ksain ki sam thliew na ka diang sha kamon hapoh u diengbah bad ai lad ia kine ki fungus ba kin iohlad ban kharoi kylleng ha u metbah. Kine ki jing ktah na ki phngit ki pynmih ia ka khlein, ka kynja dawai lam rong iong ne dum hapoh u dohnud u dieng. Lah ruh ban pynmih ia kane ka khlein da kaba pynmong khnang, bsut khnang da ki phngit jingim fungus lane da ki dawai. Ka buit ba ju kham leh bha ka dei da ka jing bsut ne dung da ki phngit jingim fungus shapoh u dieng. Ia kiwei pat ki buit ba kham duna jinglut lah nang iai wad bniah haduh mynta.



Dur 10: *Neurozerra conferta*

Ha thain Shatei Lammihngi jong ka ri India, la thung kumba 1351.40 lak tylli ki dieng agar. Namar ka jingdon jong u niang sam thliew (*Neurozerra conferta*) bun ki dieng ha ki district jong ka Jorhat, Golaghat, Sivasagar, bad Karbi Anglong ha Assam bad khyndiat ki jaka ha Tripura ki ioh jingpang da lade. Shuh shuh, don kumba 25 lak tylli ki dieng ha South India, ha ki jylla jong ka Karnataka, Tamil Nadu bad Kerala, baroh ki donkam ia ki buit leh-khnang ban pynmih ia u Dieng met Agar. Kumta, kane ka rukom pynmih agar da ki buit leh khnang ka long kaba kyrpang ban pynneh ia ka jingpynmih

jong u dieng-met Agar.

2.2 Ka Jingmih hi khlem da Leh khnang

Ha ki jinglong jingman ka mariang, ka jingmih jong ka dieng-met Agar ka long kaba duna bad ka kham shim por. Ki dieng agar ki ju sdang ban pynmih ia ka khlein hadien ka 20 snem. Ka jingman hi ka dieng-met agar ka lah ban sdang na ki daw ba wan na ka mariang kum ka jingshah bam khniang, jingmong kaba jia ha u dieng kaba ai lad ia ki phngit jingim ban rung shapoh u dieng bad kane ka pynmih ia ka khlein.



Dur 11: Ka jingmih ka dieng-met agar khlem da leh khnang

2.3 Ki Buit Pynmih da kaba Leh khnang

2.3.1 Da kaba Pynmong/Pynmynsaw khnang

Lah ban pynmih khnang ia ka dieng-met agar da kaba pynmomg ia ka met u dieng lyngba ki lad kum kaba ot khnang, dung da u nar saw khluit, sam thliew, sah prek, mait da u sdie, khoh paintali ne da kaba khoh ia ka snep ban ai lad ia ka jing kem pang. Ka jingurlong ka shong ha ka jingdon ki phngit jingim jingpang ban pynmih ia ka dieng met Agar. Ha lum Garo, la ju pyndonkam da ki sieij ban pynmong ia ki dieng. Da kaba pyndonkam da ki tiar na ka mariang, ka pyntikna ia ka jing lait na ka jing jakhlia ka dieng-met Agar. Haba ia nujor, lada pyndonkam da ki tiar kum ki nar ne ki dawai kane ka lah ban pynhiar ia ka jingbha jong ka dieng-met agar bad kane kan sa pynhiar dor ia ka.



Dur 12: Ki buit pynmong khnang ban pynmih dieng-met agar

2.3.2 Da ki Dawai

La ju pyndonkam da ki dawai ruh ban pynkiew ia ka jingmih ka khlein agar. Ki dawai ba lah ban ioh na ka mariang , ki dawai ba shna hi, ki dawai hormone (methyl jasmonate, umphniang rymbai ktung, jaggery, molasses, mluh bad kiwei) kiba lah ban pynmih ia ka dieng-met agar. Ia kine ki dawai la pynrung sha ki dieng katkum ki jingthew ba donkam. Kine ki dawai ki poi sha ka bynta ba pher jong u dieng lyngba ka jingtuid ka um ha ka met lyngba ka Xylem bad kane ka pynlong ka jingpynmih ia ka dieng-met agar.



Dur 13: Ka rukom pynmih dieng-met agar da ki dawai

2.3.3 Da ki Phngit Jingim

Ka rukom pynmih ia ka khlein agar da ki phngit jingim ka dei ka buit kaba kham shem bha. Ha kane ka buit, ia ki phngit jingim pynkem pang la ju pynrung sha u dieng ban pynmih ia ka dieng-met agar. Kane ka lad ka kham pyntikna ia ka jingmih ka dieng-met Agar lada ioh dung da ki jait phngit jingim ki ba iahap bad ka jingthew kaba biang.



Dur 14: Ka buit pynmih dieng-met agar da ki phngit jingim

Ka ICFRE-RFRI ka la ithuh bad pynkharoi ia saw tylli ki jait phngit jingim fungus kiba la lap ha ka mariang ha ki dieng ba la shah pynpang kiba pynmih ia ka dieng-met agar bad ka la nang pynroi ia ki. Ia ki dieng la pynrung da kine ki phngit jingim da kaba sam thliew 2 sentimitar ka jingiar, 4-6 sentimitar ka jing jylliew bad ha ka jing noh kynriang kaba 45^0 ha u metbah da kaba pyndonkam da u nar samthliew ne da ka kor samthliew bor ding elektrik.

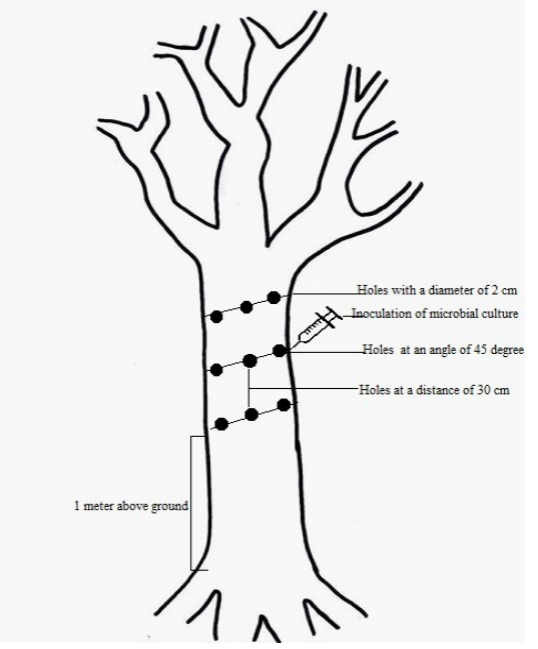
Ia ka thliew ba nyngkong lah sam 1 mitar nalor ka khyndew, bad ia ki thliew kiba sah kumba 30 sentimitar ka jingjngai kawei na kawei. Donkam ban sam 10 tylli ki thliew ba duna eh ha u dieng uba don ia ka jing heh pyllun kaba 35-40 sentimitar bad uba lah don ia ka jingjrong kaba 15 haduh 20 mitar. Lah ban sam ia ki thliew ha baroh sawdong lada don ki tiar ban kiew. La pynrung ia ka um khniang phngit jingim (10 ml) ha ki thliew ba la sam da kaba pyndonkam da u syringe injek, hadien kata la khang ia ki thliew da u kynphad. Lah ban iohi ia ka jingmih jong u dieng-met agar hadien 1 bnai ba la pynrung dawai. Lah ban iohi ia kane haba ka bynta ba ker sawdong ia ki thliew ba la ai dawai ka la kylla rong da kaba weng ia ka snep dieng kaba don hajan ka thliew.

Hadien 5-6 bnai, ki jaka ba kylla rong ki iasoh lang, ki pynlong ia u dieng-met agar ha baroh kawei ka dieng. Ki dieng ki long kiba la khreh ban ot ar snem hadien ba la

ai dawai. Hynrei, ban ioh ka jingmih kaba bun, ka long kaba bha ban ot ia ki hadien 3-3.5 snem.



Dur 15: Ki jait phngit jingim bapher ba la pynmih da ka ICFRE-RFRI, Jorhat ban bsut khnang



Dur 16: Ka rukom sam thliew ha u dieng



Dur 17: "Sasi Inoculant" u phngit jingim ban bsut khnang ha u *Aquilaria malaccensis*.

Ka ICFRE-RFRI ka la leh ia ka jingai dawai artificial ha Assam, Meghalaya, Tripura bad North Bengal. Ka jingai dawai khnang ka la pyni ia ka jingmih kaba kham bha ha kaba iadei bad ka ka jingpynlong ia ka dieng-met agar.



Dur 18: Ka jing kylla dieng-met agar ha ki dieng agar ha Assam



Dur 19: Ka jingmih dieng-met agar ha Meghalaya da ka ba injek khnang



Dur 20: Ha Tripura



Dur 21: Ka dieng-met agar ha North Bengal

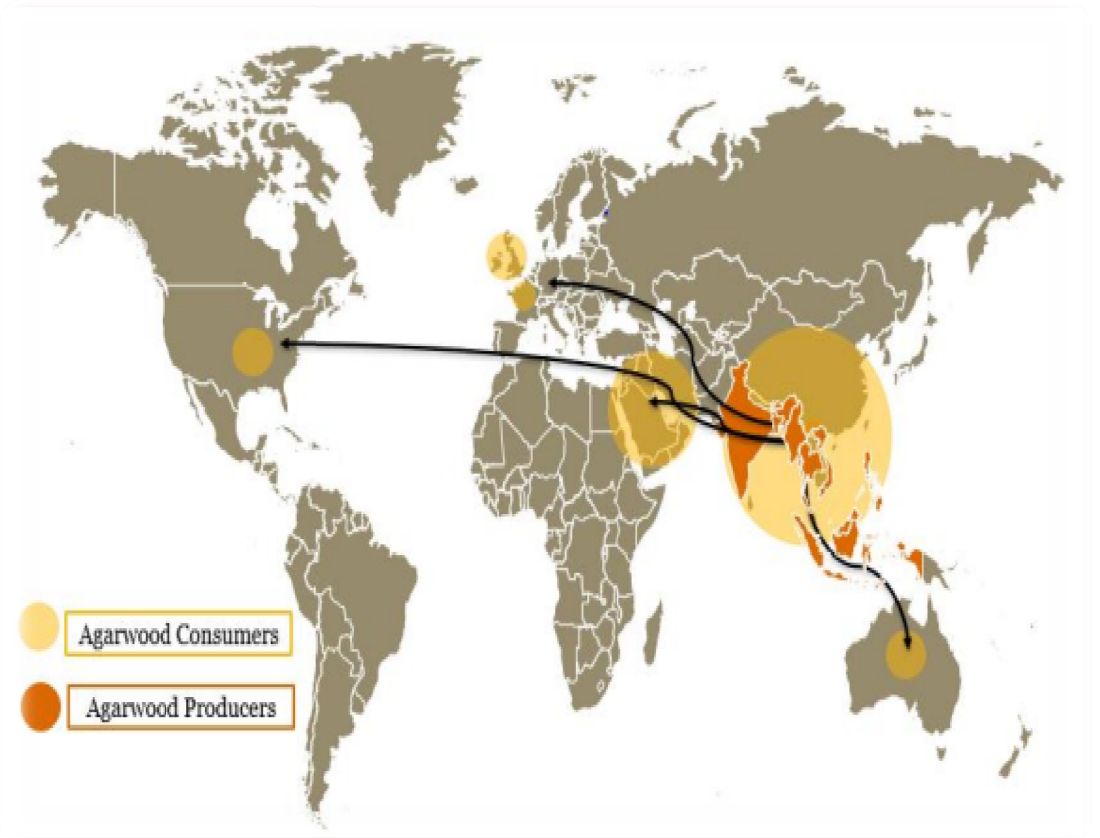


Dur 22: Da kaba pyndonkam da ki powdar phngit jingim

Lynnong 3: KI JINGPYNDONKAM IA KA DIENG-MET AGAR

3.1 Ki Nongpyndonkam ba Kongsan ia ka Dieng-met Agar

Ki nongpyndonkam ba kongsan ia ka dieng-met agar ki don eh ha dewbah Asia bad ha Middle East. Ki ri Gulf, khamtam ka United Arab Emirates bad ka Saudi Arabia, ki long ki iew kiba kongsan ha kaba ia ka dieng-met agar la niewkor bha namar ka jingpyndonkam ia ka ha ka jingthang sma iwbih bad ki jingiwbih. Ka ri China, Japan, bad South Korea ruh ki dei ki nongthied ba pawnam, da kaba pyndonkam ia ka dieng-met agar ha ka dawai tynrai, ka jingiwbih, bad ki jingleh niam jong ka kolshor. Ka ri America bad ka European Union ki pyndonkam ia ka kum ka jingpynskhem ia ki jingiwbih kiba bha bad ba remdor tam ha pyrthei.



Dur 23: Ka map ba pyni ia ki ba pynmih bad kiba dawa ia ka dieng-met agar

3.2 Ki Mar na u Agar

3.2.1 Ki Shynrain dieng, Powdar bad Jingthang Pynsma Iwbih

Ka dieng-met agar ka long kaba kordor bha namar ka jingpyndonkam tynrai jong ka kum ka jingiwbih ha ki kolshor bapher bapher bad ki jingleh niam. Ka jingthang ia ki shynrain dieng agar ka long kaba donkam eh ka jingleh ha ka thain Middle East ban burom ia ki nongwan kai. U powdar jong ka dieng-met agar u long uba kongsan ba la pyndonkam ban shna ia ki tiar pynlhop, ki pastille bad ki jingthang pynsma iwbih. Ha India, ia ki shynrain dieng-met agar ki bym da bha, lah ban pyndonkam ha kaba shna ia ki jingbam duma bym tdem ('Gutka') ban pynmih ia ka jingmad kaba bang. U powdar dieng-met agar u long kum u dawai pyniap khniang uba treikam bha pyrshah ia ki thyllah bad ksi. Katto katne ki jaitbynriew ki pyndonkam ia ka dieng-met agar ha ki jaka thang metiap, bad la pyndonkam ruh ha ki wain ha Taiwan ban pynsma iwbih.



Dur 24: Ka shynrain dieng-met agar, powdar, bad jingthang sma iwbih

3.2.2 Ka Umphniang Agar

Ka umphniang dieng-met agar, kaba la tip ruh kum ka 'Attar' bad 'Aguru,' la ju pyndonkam tynrai da ki jaitbynriew bapher bapher ha ki jingiwbih ba la shna da ka um. Ka jingiwbih ba kyrpang, ba suhsieng bad ba pher jong ka ka long kaba kordor bha, kaba pynlong ia ka kum ka mar ba la donkam eh ha ki jingshna jingiwbih ba rem dor bad ki tiar sumar met. Ia ka umphniang dieng-met agar la pyndonkam ruh ha ka jingsumar da ki buit pynsma iwbih bad ka jingiwbih ha ki dawai pynbha sniehdoh, ki sabon bad ki shampoo. Ha ka thain Middle east, ka umphniang dien-met agar ka pyni ia ka spah bad la ju pyndonkam ia ka ha ka por khawai iathoh shongkurim.

3.2.3 Ki Tiar sumar shimet

Ia ka umphniang dieng-met agar la pyndonkam bha ban shna ia ki tiar sumar met kiba rem dor namar ka jingiwbih bad ki jingdon jingem kiba myntoi. Ka long ka mar ba kongsan ha ka ki jingiwbih, ki dawai pynkhuid sniehdoh (ban pynneh met), bad ki dawai sumar

sniehdoh bapher bapher. Ka jinglong ka umphniang ka pynlong ia ka kaba biang ban sumar ia ki cell jong ka sniehdoh kiba la sniew, ban pynduh ia ki jingsma na ka met, bad ka ai ia ka jingiwbih sngewtynnad ha ki rukom sumar shimet.



Dur 25: Ki mar sumar shimet na u dieng-met agar

3.2.4 Ki Mar ba long Dawai na ka Dieng-met Agar

Ki bynta ba long dawai jong u *Aquilaria malaccensis* ki kynthup ia ki sla, u metbah, ka umphniang ba kongsan, bad ka dohnud u dieng ba lah sop ka khlein. Ki sla ki don ki dawai pynduna jingpang shini, ki dawai antioxidant, ki dawai pyniap phngit jingim bacteria, bad ki jinglong kiba iada ia ka sniehdoh bad ki lah ban pynjem ia ka jingset ryndang. Ka umphniang ba kongsan kaba la sei na ka agarwood ka don ka jinglong kaba pynjem ia ka jing sat tyrha/jingshit, anti-rheumatic, analgesic, ka jingpang sniehdoh, ka jingpynhiar mynsiem, ban pynduna dap lyer ka kpoh, bad ka jingpynsniew kpoh. Ka lah ban iarap ban pynkhuid ia ka met, pynkhuid pynmih ia ka mluh na ka met kaba palat bad ka uric acid, bad pynbha ia ki cell jong ka sniehdoh kiba la sniew. Ki nong India bad ki nong China ki pyndonkam ia ka umphniang agarwood ha ka dawai tynrai jong ki ban sumar ia ki jingpang sniehdoh bapher bapher. Ka um ba lah sei na u dieng ka khanglad ia ka jingmih jong ka histamine, da kaba ialeh pyrshah ia ka ka jinglong smieij palat ne ba syier ka sniehdoh. Ha ka dawai Ayurvedic ki pyndonkam ia ka jingtylliat u dieng ban sumar ia ka sniehdoh, katba ia ka jingtylliat ki sla pat la pyndonkam na ka bynta ban sumar ia ka jingpang sniehdoh kum ka nianglyngkut bad ka jingsma/pruritus.

Ia u dieng jong u jingthung agar la pyndonkam kum u dawai pyn heh mynsiem

ban pynjah jingsngew sih da ka ba pynbha ia ki nerve ne ki thied ki jaw ka met u briew. Ka dawai benzene na u dieng ka pyni ia ka bor treikam halor ka Central Nervous System (CNS) ne ka pyrkhat pyrdain bad ka iarap ha ka ban pynduna ia ka jingpang ba pynsngewjynjar jingmut ne ba pynsngewsih. Ki lyer iwbih ba mih na u dieng ba la shah ktah ki don ia ka bor pynkoit jingmong, ka jing weng ia ki bih oxidant na ka met bad ki jinglong kiba pyniap khniang. Ia u dohnud jong u *A. malaccensis* la shem ban long kiba ialeh pyrshah ia ka jingpang mat bad ban pynbha ia ka jingtreikam jong ki thied ki jaw. Ia ka umphniang ba kongsan la tip na ka bynta ban pynkhih ia ki ksah, pynbha klongsnam bad pynbha ia ka kpoh. Ki kynja dawai kiba don ha ka umphniang ba kongsan ki khanglad ia ka jingpynkylla dur ia ka protein, kaba ialeh pyrshah ia ki jingpang shyieng, bad lah ruh ban pyndonkam na ka bynta ka jingsumar ia ka jingkhuslai bad jingsngewsih, ka pynduna ia ki jingkhuslai. Ka umphniang ba kyrpang jong ka dieng-met agar ka don ruh ki dawai kiba ialeh pyrshah ia ki jingpang prum, kiba khanglad ia ki cancer cell ne ka jingpang bampong.

3.2.5 Ki Tiar pynwandur na u Dieng-met Agar

Ia u dieng-met Agar la pyndonkam bha ban shna ia ki jingshna kti bapher bapher. Ki nongshna tiar kiba tbit ki pynkylla ia une u dieng ba kordor sha ki mot buhkai, ki durbula, ki jingdeng kti, ki synduk, ki jingdeng ryndang, bad ki wei pat ki jingpynitynnad. Ki jinglong ba sma iwbih ba kynja mariang jong ka dieng-met agar ka khring shuh shuh ha ka jingitynnad jong kine ki jingtrei kti, kaba pynlong ia ki ban long kiba la wad bha namar ka jingitynnad bad ki jinglong ba sngewphieng.







Dur 26: Ki tiar jingtrei kti na ka dieng-met agar

3.2.6 Ka Sha na u Agar





Dur 27: Ka sha agar

Ia ki tnat kiba dang rit, khamtam ia ki sla ba nyngkong bad ba ar, la jied ban shna sha. Ki jinglong dawai jong ka sha Agar ki kynthup ia ki jinglong dawai anti-analgesic, anti-arthritic, anti-inflammatory, anti-cancer, anti-tumor, anti-oxidant, anti-bacterial, anti-fungal, bad anti-diabetic. Ka sha Agar ka ai shibun ki jingmyntoi. Ka long ka dawai pynkhuid ia ka met, ka weng ia ki bih na ka met kum ka mercury. Ka sha Agar ka dei ka dawai pynbha snam bad ka iarap ban tylliat ka kpoh. Ka pynlong ia ka sniehdoh kaba koit ba khiah bad kaba khuid, ka pynbiang ia ka shini ha ka snam, bad ka iarap ban pynbha ia ka jingtuid ka snam. Ka sha Agar ka long kaba lait na ka caffeine bad ka shini.

Lynnong 4: KA JINGREP/THUNG IA U AGAR

4.1 Ka Jinglum Symbai

Ia u dieng agar la pynroi da ki symbai. Ia ki soh kiba la san hynrei kiba jyrngam la kheit na ka bynta ban lum symbai ha ka por slap, naduh u bnai June haduh u bnai August. Ia ki soh la thad tyrkhong ha ka jingkah haduh ar sngi, hadien kata ki soh kiba pait ki pyllait ia ki symbai. Ka jingkhia jong ki symbai marwei marwei ka long naduh 29 haduh 135 mg. Ka jingthung ia ki symbai kiba heh, palat 80 mg ka jingkhia, la ai jingmut namar ka jingmih ka nang kiew katba nang heh u symbai, bad ki symbai kiba kham heh ruh ki donkam kham duna ka por ban speh. Ki symbai Agar ki long kiba kham tlot, kaba mut ba ki duh noh ia ka jinglah ban khie im ynda ki la tyrkhong. Namar ba ki symbai ki lah ban speh tang ha i por iba lyngkot bha, dei ban bet ia ki ha ki jaka sara hapoh 2-5 sngi hadien ba la lum. Ki symbai kim donkam ban leh eiei ne pdem shwa ban bet. U dieng agar u sdang ban sei symbai ha ka rta kaba 6-7 snem. U dieng agar uba la san pura u lah ban pynmih kumba 19,000 tylli ki symbai ha ka shisnem .

4.2 Ki Kam ha ka Nur Sara

Ki symbai la thung ha ka jingjylliew kumba 1 haduh 1.5 sentimitar, da kaba bud da ka jingai um man ka sngi, bad ban ai jingkah dum babha bad jingpyniaid kaba biang. Ka jingspeh ki symbai ka dei ka epigeal, kaba sdang hadien ka 10-12 sngi bad kut hapoh shibnai. Ynda ki tynrai rit ki la kot ha ka jingjrong kaba long 3 haduh 5 sentimitar (kumba 40-45 sngi), la rah tynrai sha ki polybags (9” x 6”) kiba la buh shipor ha ka jaka kah dum. Ka jingkhleh jong ka khyndew, u shyiap bad ka eit masi ba sboh bha ha ka bynta ba ia ryngkat (1:1:1) la pyndonkam ha ki plastik rah tynrai. Ki tynrai ki donkam ia ka bun ba la rah bha kham halor namar ba ki long kiba shah ktah kloi lada lang um lane sngem palat. Ka jingai um malu mala, ka jingkah dum haba sdang, jingkynriah jaka man ka por, bad jingthiew kynbat ki dei kiba kongsan na ka bynta ban ioh ki tynrai kiba khlain.

Ki tynrai agar kiba la ar snem bad kiba la kynjoh ka rynieng kaba kumba 2 phut ki long kiba biang na ka bynta ban rah tynrai noh.




Dur 28: Ki tynrai ha ki nur sara




Dur 29: Ki tynrai ba lah rah sha ki plastik polybag

4.3 Rukom Thung

4.3.1 Ha ki Kyrpong Iing

Ia ki dieng Agar kiba don ki sla bad tnat ba rit bha lah ban pynroi ha kano kano ka jaka kaba thylli, kynthup ia ki kyrpong iing ki sem, ki skul, ki hospital, bad kiwei kiwei ki ophis paidbah. Nalor ba ki ai ia ka jingitynnat, ka jingkah syrngiew, bad ka jingiada na ka lyer, ki dieng agar ki lah ban ai jingmih kaba bun ia ki nongrep. Ha ki jaka thung ha ki iing, ia ki dieng agar la thung lang ha ka kper ne jaka rep ba la don lypa jong ka iing, kaba ai jingmyntoi ha ka



Dur 30: Dieng agar ha ki kyrpong iing

ioh ka kot bad ka mariang.

4.3.2 Ha ki Khap Bun ne ka Sawdong Sawkun

Lah ban thung ia ki dieng Agar harud ki bun bad u pud u sam jong ki iing ki sem, ka lyngkha rep, ki khlaw, ki jaka ba lait, bad kiwei kiwei ki jaka ha ka jingjngai kaba jan haduh shi phut .

U metbah jong u dieng agar uba saw haduh san snem u long uba khlain bha ban bat bad kyrshan ia ki jingker ba la shna da ki sainar shiah ne ka jar nar. Lait na ka jingpynbeit ia u pud u sam, ki dieng agar kiba la thung khah bha ha ki pud jong ki ïing ki sem, ki lyngkha rep, ki khlaw, bad ki jaka ba lait, ki don ar tylli ki jingthmu kum ki dieng post ban ker. Ka jingmynsaw kaba mih na ka jingsah prek, bad ki nar ba la pyndonkam ban teh ia ki sainar bad jar nar ha ki dieng agar ka pynmih ia ka khlein.

4.3.3 Ka Rukom thung Block Plantation/ ne ha ki Kynhun ha Lum

Lah ban pyndonkam ia u Dieng Agar kum u jait dieng kyrpang ban pynlong khlaw ha ki lum, ki rud wah, jaka ieh shrah. Lah ruh ban thung ia u Agar ban bujli ia ki jingthung jingtep kiba la rim ki bym iohnong. Khnang ban pynthikna ia ka jingneh ki tynrai, dei ban thung ia ki dieng agar ha kaba sdang jong ka aiom slap. Ka jingdon jong ka jingsngem kaba biang ha ka aiom lyiur ka iarap ia ki tynrai ban heh bad san bha. Ka jingpynjngai ba la ai jingmut na ka bynta ban thung ka long kumne harum:

- 2x3 mitar ban pynsah kumba 1,700 tylli ki jingthung ha ka shi hektar ryngkat bad ki wei ki jingthung
- 2x2 mitar ban pynsah kumba 2,500 tylli ki jingthung ha ka shi hektar ryngkat bad ki wei ki jingthung
- 1.5x1.5 mitar ban pynsah kumba 4,400 tylli ki jingthung ha ka shi hektar na ka bynta ban thung shi jait

Dei ban tih ia ki nala pyntuid um kiba biang (2x2 phut) ha ka jingjngai kaba 10-mitar khnang ban iada na ka jinglang ka um. Ka por ban thung ia ki tynrai dieng agar ka long kaba bha ha ka por janmiet ne ha ka por ba dum lyoh, ha ki thliew kiba heh kumba 30-50 cm^3 ba la tih lypa. Shuwa ban thung, lah ban thep da ka sboh masi kaba la pyut bha ha ka jingkhia kaba 10-15 kg ha kawei ka thliew bala khleh lang bha bad ka khyndew ban pynlong ia ka mariang kaba kham bha na ka bynta ban seng ia u jingthung ha ka khyndew. Dei ban pynskhem bha ia ka khyndew sawdong jong u tynrai, bad dei ban ai um haduh ba ki tynrai kin da sdang ban mih. Ia ki tynrai kiba la iap dei ban bujli ha kajuh ka aiom

thung.

Hadien 8-10 snem, lah ban ot kumba 40 na ka shispah na ki dieng ban pynduna ia ka jingrben ka bri, bad kane kan pyniar ia ka jingjngai na ka bynta ka jingsan bad jingroi jong ki dieng kiba dang sah.

Ymdei ban pom pathar ia ki khlaw kiba mih ha ka mariang na ka bynta ban thung ia ki dieng agar.

4.4 Ka Rep ka Riang Ryngkat ki Dieng Agar





Dur 31: Kaba thung ia ki dieng agar ryngkat kiwei pat ki mar rep

Ym shym la don kano kano ka jingktah kaba sniew jong ki dieng agar ha ki jingthung ia ki mar Hortikolshor bad kumjuh ruh ia ki jait jingthung khlaw kiba ju thung ha Meghalaya, kaba pynlong ia u dieng agar kum u jait jingthung ba long bha ban thung bad kiwei pat ki mar rep khlaw.

Ka jingrep khlaw kaba kynthup ia u dieng agar kum u jingthung ban thung khleh lang ha ka jingjngai kaba kham heh katkum ka jingdonkam jong ki jingthung ba iadon ryngkat ba la thmu ban thung. Lah ban tnung lang bad u patchouli (*Pogostemon cablin*), u sarpagandha (*Rauvolfia serpentina*), u sohmrit (*Piper longum*), bad kiwei kiwei ki jingthung. Ka jingthung ia ki dieng agar ha ki rud jong ka kper slasha ka lah ban long kum ka jingiada na ki jinglynshop ka mariang.U shynrai, u sying, bad u sohtrun lah ban thung lang bad ki dieng agar da kaba ieh kumba 50 cm sawdong ka tduh jong u dieng agar.



Dur 32: Dieng agar bad u sohtrun



Dur 33: Dieng agar bad u slasha



Dur 34: Dieng agar bad u sohmrit, kwai bad slasha





Dur 35: Dieng agar ryngkat ka bri kait

4.5 Ka Sboh, ki Sboh Dawai Ryngkat ki Sboh Phngit Jingim

Ka jingthung ia ki dieng agar ha ki jaka khlaw ba dang thymmai bad kiwei kiwei ki jaka ba sboh kam da donkam ban ai sboh nyngkong. Hynrei katba nang heh ki dieng lah ban ai da ka sboh katba i donkam. Ban pynbha ia ka jingioh lyer bad ka jingsboh jong ka khyndew, la ai jingmut ban pyndonkam ia ki sboh mariang kum ka sboh masi, ka sboh pyut bad ka sboh coco-peat na u snepkor ha ka khyndew. Ka long kaba donkam ban kiar

na kaba pyndonkam ia ka sboh masi kaba dang thymmai ne kaba khlem pat pyut bha. Haba pyndonkam ia ki sboh mariang, ka rhizosphere (ka dewsboh kaba shalor kaba 0-45 sentimetar kaba ker sawdong ia ki thied) jong u dieng agar ka pyni ia ka jingbun ki phngit jingim, kaba ai jingmyntoi ia ka khyndew baroh kawei bad ia ka jingkoit jingkhiah jong ki jingthung.

Ka jingthung ia ki dieng agar ha ki jaka ba duna ka sboh ha ki thliew kiba heh 30-50 cm^3, 1 haduh 1.5 kg ka sboh masi kaba la pyut bha dei ban khleh bha bad ka khyndew shwa ban thung. Ha ki snem kiba hadien lah ban pyndonkam lang ia ka sboh dawai nitrogen (N), ka P_2O_5, bad ka K_2O ha ka jingthew kaba ia ryngkat 10:10:4, ha ki ar bynta, katkum ka jingpynbeit harum :

- Snem kaba ar: 200 g/dieng
- Snem kaba lai: 300 g/dieng
- Snem kaba saw shaneng: 500 g/dieng

Naduh ka snem kaba hynriew haduh kaba hynniew, lah ban ai sboh nitrogen kaba 400-500 g/dieng ha ka shisnem ha ki ar bynta shwa bad hadien ka por slap. Kane ka rukom ka iarap ban pynlong ia u dieng ba un jem met, ryngkat bad ka jingbun jong ka um ha ki cell, kaba pynsuk ia ki khniang ban ksam bad ban pynroi ia ka jingpang phngit jingim. Kane ka pynlong ia ka jingsaphriang jong ka khlein lyngba ka jingpang ha baroh shi rynieng u dieng, kaban pynmih ia ka dieng-met agar kaba kham bun.

4.6 Ki Jingpang jong u Dieng Agar bad ki Lad iada

4.6.1 Ki Khniang Pynhapsla jong u Dieng Agar

4.6.1.1 Ki Dak ki Shin

U khniang uba pynjulor tam ia ki bri bad ki jaka sara dieng agar u dei u khniang uba bam sla, u *Heortia vitessoides*. Une u khniang u buh jingma kaba khraw ia ki jaka sara bad ki kper, u pynjulor arsien ha ka shisnem, nyngkong ha u bnai Jymmang-Jylliew bad nangta ha u Nailar -Nailur. Ka jingjur jong ka jingjulor ha ka por tyrkhong (Lber-Iaiong) ka kham jur ban ia ka por slap (Naitung-Nailar). Ki dieng Agar kiba thung ha ki jaka ba lait ki kham shah ktah ha une u khniang ban ia kiba don hapoh ka jingkah. Kine ki khniang ki bam ia ki sla jong ki dieng agar bad ki tynrai kaba pynlong ia ka jingjulor kaba jur bad ka jingduh noh ia ki sla. U khniang u lah ban pynduh ia ki sla baroh jong ki dieng agar, kaba ktah jur ia ka jingroi bad ka koit ka khiah jong ki.

4.6.1.2 U Khniang ba Pynjulor

U khniang ba kongsan eh uba donkti ha ka jingpynduh ia ki sla u dei u khniang *Heortia vitessoides.*



Dur 36: U *Heortia vitessoides* ha ki dieng agar

4.6.1.3 Ki Lad iada

Ki lad ban tehlakam ki kynthup ia ka jinglum da ka kti bad ka jingpynjot ia ki khniang katba ki dang don ha ki kynhun. Ki jaka kiba la shah ktah jur dei ban sumar da ka ba ai sboh nitrogen kham bun khnang ban pynroi ia ki dieng kiba la shah ktah. Ki dawai phngit jingim pyniap khniang, kum ka dawai ba la khniot na u sla neem, lah ban synreit man la ka 7-14 sngi. Dei ban pynshlur ia ki mrad ba bam ia kine ki khniang kum ki sim bad ki jakoid ban tehlakam ia u khniang.

4.6.2 Ka Jingiap tnat jong u *Aquilaria malaccensis*



Dur 37: Ka jingiap tnat u *Aquilaria malaccensis*

4.6.2.1 Ki Dak ki Shin

Lah ban iohi ia ka jingpyut bad jingiap ki trai tnat bad ki tynrai jong u dieng. Ki tnat ki kylla long kiba suk ban khein, bad ki dieng ki kylla tyrkhong bad khatduh ki iap noh.

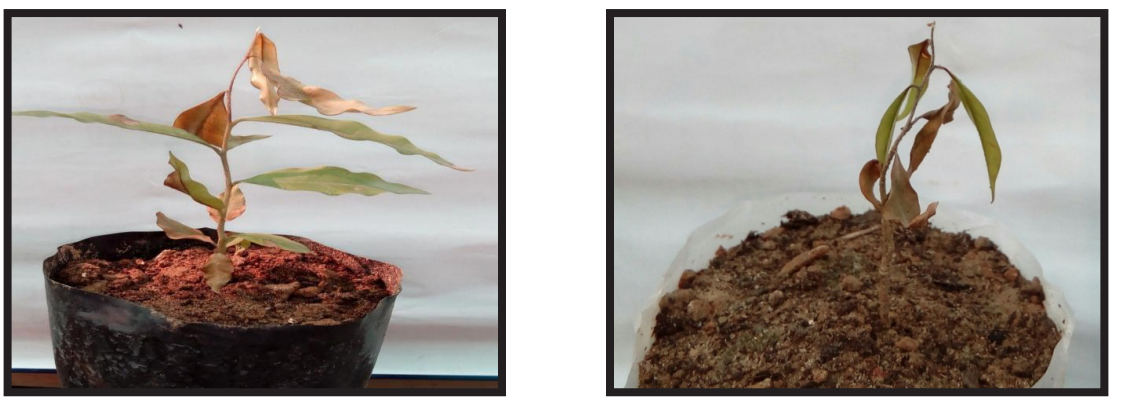
4.6.2.2 U Khniang ba Pynjulor

La iohi ba u khniang u *Pratylenchus sp.* u pynmih ia ka jingpang ba nyngkong eh ha ki tynrai jong u dieng agar bad lyngba jong u, u khniang *Fusarium solani* u rung bad pynlong ia ka jingpyut.

4.6.2.3 Ki Lad iada

Ka jingpyndonkam ia ki dawai pyniap khniang, kum ka umphniang neem (3%) lane ka jingmih na ka jingkhniot ia u symbai neem (NSKE, 5%), sawdong ka tduh jong u dieng, la ka long lakajong ne ryngkat, la shem ba ka long kaba treikam bha.

4.6.3 Jingpang Iap Kyniur jong u *Aquilaria malaccensis*



Dur 38: Ka jingiap kyniur u *Aquilaria malaccensis*

4.6.3.1 Ki Dak

Kane ka jingpang ka kham jia ha ki symbai kiba dang rit ha ki jaka sara. Ha ki por ba sdang, ki tynrai ki pyni ia ka jingsan ba tlot bad ka jingkylla rong kaba shai jong ka bynta jong ka kliar bad kiba pynlong ia ki jingthoh dak kiba rit ha ka bynta jong ka metbah bad ki thied ha sla khyndew. Hadien, ki lam rong bthuh ne rong ktieh ha ki sla ki iasoh lang bad ki tap ia ka sla baroh kawei. Ki tynrai ki kylla namar ka jingsngem um bad ka jingran ki tnat. Ka jingpyut jong ki tynrai ka mih ha ka jingpang kaba jur, kaba ialam sha ka jingiap jong ki tynrai.

4.6.3.2 Ki Lad iada

Shuwa ban bet ia ki symbai, la ai jingmut ban pynshah sngi ia ka khyndew lane ban sliew lyer bih ia ki nur sara da ka 4% ka formaldehyde. Ia ki nur sara dei ban tap da ka plastic 15 sngi.

LYNNONG 5: KA JING OT IA KA DIENG-MET AGAR

5.1 Ka Rta Ot / Kheit

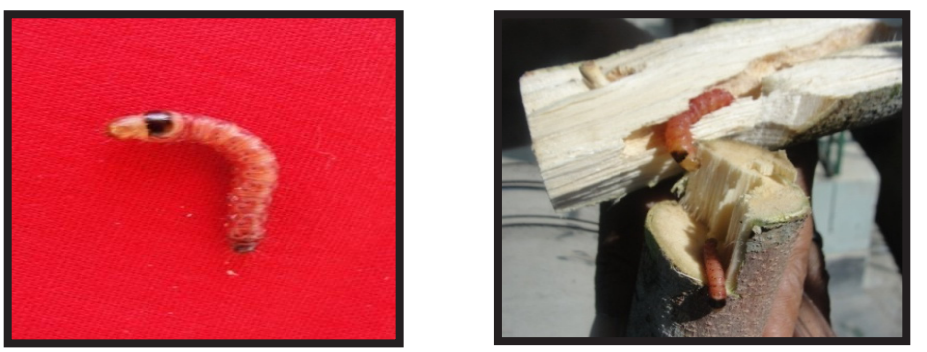
Ka por kheit ka shong ha ka jingheh jong ka jingmih jong ka dieng-met agar bad ka jinglang jong ka khlein ha u dohnud jong u dieng. Ka jingdon jong ki dak kiba lam iong ha ka snep jong u dieng ka pyni ia ka jingpang. Da kaba peit ia kine ki dak ba thoh iong, ki dieng kiba la shah ktah, kiba la tlot ka jing san jong ki, lah ban jied ia ki ban ot noh. Ha ka mariang, ka jingmih jong ka dieng-met agar ka shim por haduh 40 snem, hynrei ia kane ka rukom lah ban pynsted lyngba ka jingai dawai khnang, kaba pynduna ia ka por pynmih ia ka dieng-met agar sha ka 10 haduh 15 snem.

5.2 Ka Aiom Ot / Kheit

Ha ki aiom tlang hapdeng u bnai Kyllalyngkot bad Jymmang ka kham bha ban ot khnang ban ioh ia ka jingmih kaba bun eh jong ka umphniang bad ka jingduna jong ka um dambit ha ki dieng.

5.2.1 Ki Dak kiba Shabar ban Ithuh ia ka Jingman ka Dieng-met Agar

Ki dak kiba shabar kiba iarap ban ithuh ia ka jingsdang ne jingmih jong ka dieng- met agar ha ki dieng agar ki kynthup ia ka jingiohi ia ki thliew ba la sam da ki khniang, ka jingmih um na ki thliew kiba thymmai, bad ka jinglang jong ka pui pui dieng ha ka tduh jong u dieng. Kiwei pat ki dak ki kynthup ia ka jingset ki thliew da ka jingdap doh kaba pynsah dak iba rit, ki jingor pait ba jrong ha ka metbah, ka jing at ne them, bad teng teng ka jingmih jong ki kynja prum ha u metbah jong u dieng. Ka jingmih jong ki kynhun dkhiew ha ka snep, ka jingmih jong ki skum dkhiew, ki sla kiba kham rit bad kiba lam stem, ka jingbym thikna bad ka jingbym koit bym khiah jong u jingthung baroh kawei, bad ka jingsawa sur thylli haba la tied ia u metbah jong u Agar ka thew ia ka jingman jong dieng-met Agar.



Dur 39: U khniang sam thliew ha u dieng agar



Dur 40: U ksain ba rung sha ki thliew



Dur 41: Ka jingmih ka kynja um na ki thliew thymmai



Dur 42: Ki dak ha ka trai u dieng



Dur 43: Ka jingdap/tap ia ka thliew ba mong



Dur 44: Ka dak orpait



Dur 45: Ka jingmih ka dieng-met agar ryngkat ki thliew khniang

5.3 Ka Rukom Ot/Kheit

Hadien ka jingot, ia ki dienglyngkhot jong ka dieng-met Agar la dain sha ki bynta kiba rit. Ia ki bynta kiba don ia ka khlein lah ban sei da kaba weng ia ki bynta bym don jingpang da kaba pyndonkam da ki tiar kti kiba kyrpang, ka jingtrei kaba shimpor bha bad kaba bam bormet.

Ban pynmih ia ka umphniang agar, ia ki shynrain dieng-met agar la pdem ha ka um ar haduh lai sngi. Hadien kata, la buh ha ki khiew steel kiba don jingiasoh bad ka tiar pynpjiar. La pjiar kumba 30-36 kynta, ha kaba ka umphniang ba kongsan la pyniakhlad na ka um. Ka umphniang ba la sei la buh ha ki tyndong bym lait lyer, khamtam ha ki klong aluminium, ban pynneh ia ka jingbha jong ka.



Dur 46: Ki lyngkhot dieng agar ba la ot



Dur 47: Ki dieng ba la pharia



Dur 48: Ki dieng agar ryngkat ka khlein ba pharia



Dur 49: Ka tiar pjiar



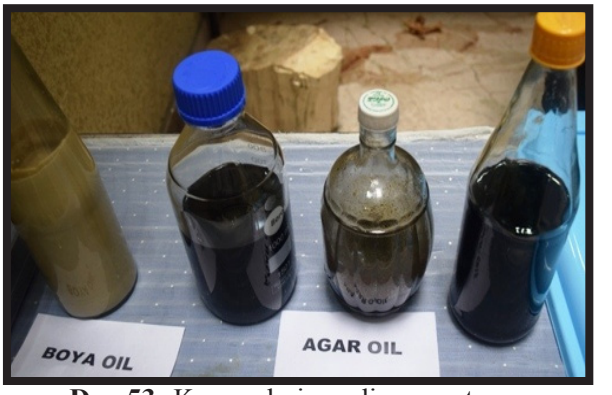
Dur 50: Ka jinglum da ka bormet ia ka dieng-met agar



Dur 51: Ki shynrain dieng-met agar



Dur 52: Jingpdem ia ki shynrain dieng-met agar ha ka um



Dur 53: Ka umphniang dieng-met agar

Lynnong 6: KA JINGMIH BAD KA JINGKHEIN JINGDIAH

6.1 Jingmih

U dieng uba dang 10 snem u lah ban ai 3-4 kg ki shynrain dieng-met agar. Kine ki shynrain, lada pjiar, ki lah ban pynmih 10-15 g ka umphniang.

6.2 Ka Jinglut Jingsep

Ki don lai tylli ki jait umphniang ba la pynmih na ka agarwood, kata *ka Boya, Boha*, bad *Khara*. Ka dor jong ka umphniang agar ka long kaba pher bha. Ka dor jong ka umphniang agar ka long naduh Rs. 6 lak/kg haduh Rs. 2 klur/kg, bad ka jingkhein kyllum ka long Rs. 10-30 lak/kg. Ki shynrain dieng Agar ruh ki don ka dor kaba heh bha, ha kaba ka dor kaba kyllum ka long Rs. 80,000 – Rs. 100,000/kg. Ha u snem 2001, uwei u dieng agar uba la iohpang pura ha Hojai Forest Division ha Assam la die palat Rs. 1.10 klur tyngka. Katto katne ki dieng kiba don dor hapdeng Rs. 15-30 lak ki dang don ha shatei lam mihngi jong ka ri India.

Ka jinglut jingsep na ka bynta ban seng bad sumar ia ka kper dieng agar kaba shi hektar, kaba kynthup kumba 1,700 tylli ki dieng ba la thung da ka jingjngai kaba 2 x 3 mitar ha ka jingim kaba 15 snem, la ai ha ka Table 3.

Table 3: : Ka jinglut jingsep ia ka jingpynlut ha kaba thaw bad sumar ia ka kper dieng agar kaba shi hektar kaba kynthup ia 1700 tylli ki jingthung agar ha ka jingim kaba 15 snem.

Jingpynlut	1st Year (Rs.)	2nd Year (Rs.)	3rd Year (Rs.)	4th Year (Rs.)	5th Year (Rs.)	6th – 8thYear (Rs.)	9th – 15thYear (Rs.)	Total
Ban ker ia ka pud bad pynbha	16,000	3,000	5,000	18,000	5,000	5,000	-	52,000
Ban pynkhreh ia ka lum	85,000	-	-	-	-	-	-	85,000
Dor ki Tynrai	17,000	-	-	-	-	-	-	17,000
Bai Thung	5,100	-	-	-	-	-	-	5,100
Ka sboh pyut	10,000	10,000	9,000	10,000	10,000	-	-	49,000
Ki dawai sboh	-	7,000	7,000	8,000	8,000	-	-	30,000

Jingpynlut	1st Year (Rs.)	2nd Year (Rs.)	3rd Year (Rs.)	4th Year (Rs.)	5th Year (Rs.)	6th – 8thYear (Rs.)	9th – 15thYear (Rs.)	Total
Bai theh sboh	5,100	5,100	5,100	5,100	5,100	-	-	25,500
Ki kam hadien	1,25,000	1,25,000	1,25,000	1,25,000	1,25,000	3,75,000	8,75,000	10,00,000
Ki phngit jingim	-	-	-	-	-	4,76,000	4,76,000	4,76,000
Kiwei kiwei de	20,000	2,500	2,000	3,000	2,000	5,000	8,900	34,500
Baroh	**2,83,200**	**1,52,600**	**1,53,100**	**1,69,100**	**1,55,100**	**8,61,000**	**13,59,900**	**31,34,000**

Ka jingkhein ia ka jingmih/jingiohnong na ka bynta ka jingthung dieng agar ha ka jaka kaba shi hektar, kaba kynthup kumba 1,700 tylli ki dieng ba la thung ha ka jingim kaba 15 snem, la batai bniah ha ka Table 4.

Table 4: Ka jingkhein ia ka jingmih na ka jingthung agar kaba hektar kaba don 1,700 tylli ki dieng ha ka por ba 15 snem.

Ki mar	Katno ki dieng	Katno shi dieng (Kg)	Rate (Rs. / Kg)	Jingioh (Rs.)
Boya*	**250**	**25**	**10**	**62,500**
Dum (Low Quality)	**550**	**40**	**100**	**22,00,000**
Dum (High Quality)	**400**	**50**	**1,000**	**20,00,0000**
Botali Mal	**500**	**0.5**	**5,000**	**12,50,000**
Total Gross Return				**2,35,12,500**

*Boya – Hadien 7-8 snem

Ka jingmih kaba pura ha ka por ot kaba 15 snem: Rs. 2,03,78,500 (Rs. 2,35,12,500 - Rs. 31,34,000) lane Rs. 2 klur shi hektar

Lynnong 7: KI AIN BAD KI JINGPYNIAID

7.1 Ka Jingot bad ka Jing Shalan

Ka jingpom ia ki dieng Agar kiba ieng ha ki jaka bym dei khlaw la pyniaid da ka Meghalaya Tree Felling (Non-Forest Areas) Rules, 2006. Ki kyndon ki dawa ban registar ia ka jingthung dieng ha bri da ki riew shimet bad ki paidbah kiba don ia ka jaka bym long khlaw khlem da ioh jingiarap pisa na ka Sorkar lane ka Tnad Sorkar ryngkat bad u Heh Ophisar Khlaw jong ka Autonomous District Council ba dei peit. Kat kum kine ki kyndon, ki jingthung dieng ba la seng ha ki jaka ba dei trai ne synshar da ka Sorkar bad ki jingthung dieng ba la sdang da ka jingiarap pisa ba pura ne shibynta na ka Sorkar ne ka tnat treikam jong ka Sorkar, wat lada ka dei kaba thung da ki riew shimet ne ki paidbah, dei ban registar bad ophisar Divisional Forest Territorial uba dei peit ia ka kam.

Kat kum kine ki kyndon, ban pom haduh shispah tylli ki dieng donkam jingbit na u Conservator of Forests uba peit ia ki kam Territorial ha ka tnad Forest and Environment. Ban pom palat shispah tylli ki dieng donkam jingbit na u ophisar Chief Conservator of Forests Territorial uba dei peit ia ka kam.

Na ka bynta ban pom ia ki dieng kiba ieng ha ki jaka ba dei trai ne synshar da ka Sorkar, donkam ia ka jingpan jingbit na u ophisar Conservator of Forests lane na u Chief Conservator of Forests, bad katkum ka jinglong jingman, na u Divisional Forest Officer Territorial uba dei peit ia ka kam. Na ka bynta ban pom ia ki dieng ba la thung da ka jingiarap pisa ba pura ne shibynta na ka Sorkar ne ki tnad Sorkar, donkam ban aiti ia ka aplikeshon sha u District Level Officer jong ka Department kaba la ai jingiarap pisa ban thung ia kum kine ki dieng. Ia ka aplikeshon na ka bynta ki dieng ba la pom na ki jaka bym dei khlaw ha ki jaka rep shimet ba la thung khlem kano kano ka jingiarap pisa na ka Sorkar ne ki tnad Sorkar donkam ban aiti ha u Chief Forest Officer jong ka Autonomous District Council ba dei peit.

Ka jingshalan ia ki dieng bad kiwei kiwei ki mar u agar ba la ioh na ki dieng ba la pom hadien ba la ioh ia ka jingbit kaba donkam na u Conservator lane u Chief Conservator, katkum ka jinglong jingman, donkam ia ka transit pass na u Divisional Forest Officer Territorial uba dei peit ia ka kam.

7.2 Ka Rukom Pynkylla Dur

Ban sdang ia ka jingpynkylla dur jong u agar la pynbeit da ki kyndon jong ka Wood Based Industries (Establishment and Regulation) Guidelines, 2016 jong ka Ministry of

Environment, Forest and Climate Change, jong ka sorkar India bad ki kyndon ba la buh da ki jylla. Katkum kine ki kyndon, ki karkhana agar ki donkam ban ioh ia ka laisen na ka tnad Forest and Environment Department.

7.3 Ka Khaii Pateng ha ka Pyrthei kyllum

Da ka jingkiew ka spah ha ki ri Gulf, kiba dei ki nongpyndonkam ba kongsan ia ki dieng-met agar bad ki mar agar, ka jingdawa ia ki dieng-met agar ka la nang kiew bha ha kine ki shiphew snem ba la leit noh. Kane ka jingdawa mynta ka palat ia ka jingpynbiang, kaba ialam sha ka jingkiew dor, ka jingot bym lah ban pynneh pynsah, ka jingpyndonkam palat, ka jinghiar jong ki marpoh khyndew, ka jinghiar ha ka jingbha jong ki mar, bad ka jingkiew ka jingkwah ban rep dieng agar.

Namar ka jingduna jong ki marpoh khyndew bad ka jingdawa kaba jur, u *Aquilaria malaccensis*, u ba kongsan eh ban pynmih ia ka dieng-met agar ha India, la jer bad la kynthup ha ka Appendix II jong ka Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) kum "u jait jingthung uba lah ban duh jait, " khnang ban pynthikna ba ka jingkhaii kan ym long ka daw jong ka jingduh jait jong u.

Ym shah ban shalan ia ki dieng-met agar na ki jaka khlaw. La shah ban shalan shabar na ki jaka rep, katkum ka jingbud ryntih ia ki kyndon jong ka CITES. Ka khaii pateng ha ka pyrthei ia baroh ki bynta u dieng bad ki mar lait noh ki symbai bad ki pui pui syntiew; ki tynrai ne ki jingthung ba la ioh na ki laboratory, ha ki kynja um ne kynja ba eh, ba la kit ha ki klong khuid; ki soh; ki sla; u powdar dieng agar ba tam, kynthup ia ka powder ba bun jait; bad ki mar ba la dep shna ba la song bad ba la pynkhreh ban die marbam donkam ia ka Shalan Permit shabar ri na ka bor pyniaid jong ka CITES Management Authority ba la jied. Ha India, la thung ia u Additional Director General of Forests (Wildlife) ha ka tnad Union Ministry of Environment, Forests and Climate Change ba la pynkup bor da ka CITES.

Ia ka Shalan Permit lah ban ai da ka CITES Management Authority halor ka Certificate of Legal Procurement (CLP) ba la ai da u ophisar ha ka tnad Forest and Environment ym hapoh ka kyrdan Assistant Conservator of Forests. Lah ban ai ia ka CLP tang hadien ba la pynthikna ba ia u mar la shim na ka jaka rep ba la pynneh pynsah bad la pyntreikam thikna ia ka jingbud ryntih ia baroh ki kyndon ain.

U nongshalan mar shabar u dei ban pyni ia ka Certificate of Origin na u Divisional Forest Officer, ban thep ia ka affidavit ha ka kot stamp kum ka sakhi ia ka jingpynkylla ia ka jinglong trai, ban ioh ia ka CLP na u Divisional Forest Officer hadien ba la thep bad

song ia ka mar, bad khatduh eh ban ioh ia ka Shalan Permit na ka CITES Management Authority.

Ka jingshalan shabar ri ia ki mar ba la pynkiew dor ba la shna na ki mar rep ba la wanrah nabar ri la shah da kaba pynmih ia ka affidavit ha ka kot stamp kaba pynpaw ba la shim ia ka na ki mar rep ba la wanrah katkum ka ain.

Ka CITES Management Authority ka don saw tylli ki jaka treikam kiba don ha Kolkata, Mumbai, Chennai bad Delhi.

Ka jingshalan bad ka jingwanrah ia ki dieng-met agar bad kiwei kiwei ki mar remdor na u agar kiba la pynwandur la shah tang na ki 12 tylli ki kad kiba la buh kyrpang ban rung bad mih kiba don ha Amritsar, Chennai, Delhi, Kandla, Kochi, Kolkata, Kozhikode, Mumbai, Mundra, Nhava Sheva, Thiruvanathapuram bad Tuticorin.

7.4 Katno Man u Snem lah ban Shalan

Ia ka jingshalan ha ka shi snem shabar ri la buh katkum ka jingwad bniah ba la leh da ka Scientific Authority ba la jied da ka CITES. Ka Scientific Authority ka buddien ia baroh ar ki jingbit ban shalan shabar ri ba la ai na ka bynta ban shalan ia u Agar bad ka jingshalan ba shisha jong u.

Haba ka Scientific Authority ka la rai ba ka jingshalan ia ki nongmuna jong u agar ka dei ban long kaba duna ban pynneh ia uta u jait jingthung ha baroh kawei ka jaka jong u ha ka kyrdan kaba iadei bad ka bynta jong u ha ki jinglong jingman ha kaba u mih bad kaba palat bha ia ka kyrdan ha kaba uta u jait jingthung u lah ban long uba bit ban shah kynthup ha ka Appendix I jong ka CITES, ka Scientific Authority ka ai jingmut ia ka Management Authority ia ki lad ki lynti kiba biang ban shim ban khanglad ia ka jingai jingbit ban shalan shabar ri ia ki nongmuna jong uta u jait jingthaw ha ka jingkhein lang, ia kine ki jingdonkam la khot 'Ki Jinglap ba khlem jingma' lane 'Non-detriment Findings'(NDFs).

Ka Botanical Survey of India, ryngkat bad ka Indian Council of Forestry Research and Education - Rain Forest Research Institute (ICFRE-RFRI) ka la shah jied kum ka Scientific Authority na ka bynta ka Ri India, dang shen ka la pynlong ia ka "Non-Detriment Findings Study" hapoh ka CITES ban pynthikna ia ka bhah ba man la u snem na ka bynta ban shalan ia ki dieng-met agar na ri India. Ka jingwad bniah ka la ai jingmut ban shalan shabar ri ha ka shisnem ia ki dieng shynrain bad ka umphniang agar ha ka jingkhia kaba 1,51,080 kg bad 7,050 kg shisnem.

Ka bhah ba la tyrwa na ka bynta ka jylla Meghalaya ka long 200 kg ki chips/ powdar/ non-exhausted sawdust bad 9 kg ka umphniang agar.

7.5 Ka Jingpyllait na ka Bynta ban Pyndonkam ha Iing

Ka jingshalan shabar ri haduh 1 kg ki shynrain dieng, 24 ml ka umphniang, bad ar tylli ki jingdeng ne ki jingdeng duwai (lane ar tylli ki jingdeng ryndang ne ki jingdeng kti) na ka bynta uwei u briew na ka bynta ban pyndonkam ha iing la shah khlem da don jingbit ban shalan shabar ri, lada baroh ar tylli ki ri kiba wanrah bad kiba shalan ki pyntreikam ia ki kyndon ba kyrpang bad ki jingpyllait ha iing na ka bynta kine ki jait dieng.

7.6 Ki Mar ba Lah ban Shalan

Ia u dieng-met bad ki mar jong u la khaii hapoh ka ITC-HS Codes. Ka ITC-HS Code 12119080 ka kynthup ia ki dieng-met agar, kynthup ia ki shynrain dieng bad ki powdar, katba ka ITC-HS Code 33013010 ka iadei bad ka umphniang agar. Nalor ki shynrain dieng, ki powdar, bad ki umphniang agar, la khaii ia ki dieng-met agar ha ki rukom bapher bapher. Kine ki kynthup ia ki jingoh shrong, ki mar ba mih na u, ki jingmih na ka jingkhniot, ki jingthung kiba im, ki dieng, ki lyngkhot dieng, ki mar dieng, ki dieng ba la ot, ki nongmuna, ki dawai, bad ki mar bym pat ithuh. Ia kine ki mar la ju khleh lang bad kiwei pat ki tiar kiba iadei dur ha ka jingpyniapher jong ka ITC-HS.

Lynnong 8: JINGPYNKUT

U Agarwood, uba don ka jingithuh kaba riewspah ha ka histori bad ka jinglah kaba khraw ha ka ioh ka kot, u wanrah ia ka lad kaba kyrpang na ka bynta ka roi ka par kaba iai tyllun ha ka jylla Meghalaya. Ka jingrep, jingot bad jingpynkhreh ia ki dieng-met agar ka ai kamai kaba heh ia ki nongshong shnong bad ka iarap ban pynneh pynsah ia une u mar ba kordor. Kumba la batai bniah ha kane ka kot baroh kawei, ki rukom treikam kiba bniah kiba kynthup ia ka jingpynmih dieng-met agar—naduh ka jinglum symbai haduh ka jingpynmih ia ka khlein—ki pynpaw ia ka jingaiti bad ka jingtbit kaba donkam ban pynmih ia ki mar dieng-met agar kiba bha.

Ka jingdawa ha ka pyrthei ia u dieng agar ka nang iai kiew, kaba la pynlong da ki jingpyndonkam bapher bapher jong u ha ki jingshna jingiwbih, ki dawai tynrai, bad ki jingleh niam. Kane ka jingdawa kaba nang kiew bad ki rukom rep kiba iai tyllun ki pynthikna ba u dieng agar u lah ban long u jait jingthung uba lah ban pyn im bad uba lah ban ai kamai ha ki snem ban wan. Ki ain bad ki kyndon khaii pateng ha ka pyrthei ba la pynpaw hangne ki long kiba kongsan ha kaba pynneh ia ka jinglong ryntih hapdeng ka jingpynbiang ia ki jingdonkam jong ka iew bad ka jingpynneh pynsah ia ki jait dieng agar.

Katba ngi dang khmih sha ka lawei, ki jingkiew ha ka rukom bsut ia ki phngit jingim sha ki dieng bad kiwei kiwei ki rukom rep ki ai jingkyrmen ban pynbha ia ka jingpynmih khlein, ka ban pynkiew shuh shuh ia ka jingmyntoi ha ka ioh ka kot na ka bynta ki nongrep. Ka jingiatreilang jong ki nongrep trai ri, ki nongwad bniah, bad ki tnad sorkar ki long kiba donkam ha kaban pynbha ia ka jingpynmih dieng agar katba dang iaid ban iada ia ka jinglong tynrai bad ka kolshor jong u.

Ka jingrep bad jingkhaii ia u dieng agar ka don ka jingkyrmen kaba khraw na ka bynta ka jingkiew ha ka ioh ka kot bad ka roi ka par ha ka jylla Meghalaya. Da kaba bud ia ki rukom trei kiba bha tam bad bud ryntih ia ki kyndon ba la buh, ki nongshim bynta ki lah ban pynthikna ia ka jingroi jingpar kaban bteng ia kane ka kam kaba kordor.



U Dr. Rajib Kumar Borah, uba dei u Scientist-G, u dei u Forest Pathologist uba don palat 30 snem ka jingshemphang hapoh ka Indian Council of Forestry Research & Education (ICFRE). U la trei ruh kum u Director-in-Charge jong ka ICFRE Rain Forest Research Institute ha Jorhat. Ha ka jingtrei jong u, u la phai khmat bha halor ki jingpang khlaw ha ki jingthung tynrai, ki jingtei, bad ki khlaw mariang, ryngkat bad ki lynti jingiada ïa kitei ki jingpang. U Dr. Borah u la long ruh u Principal Investigator na bynta hynriew tylli ki projek jingwadbniah bad ar tylli ki projek jingai jingmut halor ka agarwood. U la pynmih palat 50 tylli ki paperha nIndia bad shabar ri. Ha kine ki por, u trei kum u Group Coordinator (Research) ha ka ICFRE Rain Forest Research Institute, Jorhat.



U Dr. Nitin Kulkarni u dei u Forest Entomologist uba don palat 30 snem ka jingtrei hapoh ka Indian Council of Forestry Research and Education (ICFRE). U la trei kum u Director jong ka ICFRE-Institute of Forest Productivity bad kum u Director-in-Charge jong ka Tropical Forest Research Institute ha Jabalpur. Ha ka jingtrei jong u, u la leit trei bniah ïa ka bioecology jong ki jingpang ba khraw na ki jingthung khlaw ha ki jingthung tynrai, bad ki mariang, ryngkat bad ki lynti jingiada na ki jingpang da ka jingïapynïasnoh baroh lang. U la pynmih 160 tylli ki kot jingwadbniah ha ki khubor India bad shabar ri. Ha kine ki por, u trei kum u Director jong ka ICFRE-Rain Forest Research Institute, Jorhat.



U Harish Chandra Chaudhary u dei u Officer jong ka Indian Forest Service uba don palat 31 snem ka jingtrei hapoh ka Sorkar India, ka Sorkar Meghalaya, ka Indian Council of Forestry Research and Education (ICFRE), bad ka National Human Rights Commission. Ha kaba trei hapoh ka ICFRE haduh san snem, u la ïadon bynta ha ka jingpynkhreh bad pyntrei kam ïa shibun ki projek jingwadbniah halor ka khlaw. Ha ka jingtrei kaba hynriew snem ha ka Sorkar India, u la peit ïa ki kam kiba ïadei bad ka Forest (Conservation) Act 1980 bad ka Green India Mission. Ha kaba trei hapoh ka Sorkar Meghalaya, u la peit ïa ki kam kiba ïadei bad ka jingpynïaid khlaw, jingpynneh mariang, jingthung dieng thymmai, ka jingri kynjoh, bad ka jingwadbniah halor ka khlaw, jingnang jingtip bad jinghikai. Ha kine ki por, u trei kum u Principal Chief Conservator of Forests, Working Plan, Research & Training, bad District Council Affairs ha ka Forest and Environment Department, Sorkar Meghalaya.

978-81-978824-1-8